Appendix III

DOT Program Evaluation

Performance measures show if intended outcomes are occurring and assess any trends. Program evaluation uses analytic techniques to assess the extent to which our programs are contributing to those outcomes and trends. As required by GPRA, the Department's 2000 - 2005 Strategic Plan will include a new program evaluation plan. This appendix provides a summary of DOT's plan for managing program evaluation within the Department and a report on the program evaluations completed in FY 1999.

Types of Program Evaluations: Program evaluation is an assessment, through objective measurement and systematic analysis, of the manner and extent to which programs achieve intended objectives.

The purpose of this program evaluation plan is to improve the analytic content of evaluations Department-wide in order to support the management of DOT programs for results. This plan will restrict itself to those evaluations that meet the precepts of program evaluation:

- *Impact Evaluations* use empirical data to compare measurable program outcomes with what would have happened in the absence of the program. These represent the highest standard of program evaluation, and are often the most difficult and expensive to construct and interpret.
- *Outcome Evaluations* assess the extent to which programs achieve their outcome oriented objectives. Outcome evaluations will use quantitative methods to assess program effectiveness, but fall short of the rigorous causal analysis of impact evaluations.
- *Process Evaluations* assess the extent to which a program is operating as intended. While a true process evaluation will use objective measurement and analysis, it falls short of assessing the causal links between intervention and outcome.
- *Cost-Benefit and Cost-Effectiveness Analyses* compare a program's outputs or outcomes with the costs to produce them. This type of analysis conforms with program evaluation when applied systematically to existing programs and when measurable outputs and outcomes are monetized.

Program evaluations are retrospective, quantitative assessments of existing programs. Forecasts of the impact of proposed or planned programs are considered part of policy analysis, and are not considered in this evaluation plan.

Summary of Program Evaluations Completed in 1999:

The aim of this plan is to identify areas of program evaluation for:

- Programs that represent significant DOT activities contributing to our strategic goals.
- Programs that are cross modal in nature, or would benefit from evaluation that is reviewed outside an Operating Administration.
- Programs where Department-wide expertise can assist in evaluation planning and review.

Program Evaluation Management: We will manage program evaluations within DOT through a Program Evaluation Council (PEC), comprised of representatives from each Operating Administration and select Secretarial Offices. The PEC reviews proposals for program evaluations, provides technical guidance, shares information across modes, monitors ongoing evaluations, and conducts peer review of finished evaluations.

DOT staff, contractors, or academic institutions may do program evaluations. PEC and senior management reviews are designed to ensure that the finished evaluations are credible and useful regardless of how they are accomplished.

The Office of Budget and Programs and the Inspector General will manage the schedule of program evaluations, foster training and development of program evaluation skills, and review the quality of the program evaluation process. The Office of Budget and Programs will work to ensure that the results of program evaluations are considered in the allocation of resources. The Office of the Inspector General will continue its own program evaluations independent of this schedule, as deemed appropriate.

<u>DOT-wide Hazardous Materials Program Evaluation (DOT-wide)</u>

During 1999, a ONE DOT team from the OIG, RSPA, USCG, FAA, FHWA, and FRA, conducted a DOT-wide Hazardous Materials Program Evaluation. The program evaluation had two broad objectives. Objective I was to document current hazardous materials movements, Operating Administrations' programs, and program delivery. Objective II was to assess the effectiveness of DOT's overall hazardous materials program as it affects each step in the hazardous materials transportation process, from packaging to receiver, recommend improvements, and identify areas for further study.

The team found that DOT's hazardous materials program works reasonably well but needs to be improved through DOT-wide strategic planning and program coordination, more focused delivery, and better data. Specifically:

- The Secretarial delegations do not provide for DOT-wide coordination or oversight of the five Operating Administrations responsible for ensuring hazardous materials safety. To address this, DOT needs to establish a central focal point to administer and deliver a DOT-wide hazardous materials program and provide for more effective deployment of resources. DOT should also place more emphasis on hazardous materials safety in its Strategic and Performance Plans to better guide program delivery and measure results.
- Shippers of hazardous materials generally receive less attention DOT-wide than carriers, yet they offer the greatest opportunity to improve safety. Shippers are a common element across the Operating Administrations, perform critical functions early in the transportation stream, and can impact safety system-wide. As a result, the Department needs to develop DOT-wide strategies and actions to focus more on high-risk or problem shippers through targeted outreach activities, technical assistance, and inspections.
- Human error continues to be the single greatest contributing factor in hazardous materials incidents and DOT has not been effective in changing this trend. To address this, in part, DOT should strengthen its training standard to improve industry safety practices and compliance with the hazardous materials regulations to reduce incidents. Also, the traveling public is largely unaware of the dangers of the hazardous materials they enter into the transportation system and the actions they take on the nation’s highways that could affect safety. Accordingly, DOT needs to develop a coordinated, national campaign to increase awareness and reduce the risk of hazardous materials incidents.
- DOT lacks reliable, accurate, and timely data to measure program effectiveness and make informed program delivery and resource decisions. DOT needs to improve hazardous materials census, incident, compliance, and budget data DOT-wide and develop ways to increase data availability and usefulness. DOT should also improve its analysis of incident data to better understand the root causes of hazardous materials incidents and address these through DOT-wide hazardous materials and broader safety program initiatives.
- In addition, a number of areas were identified requiring future analysis or other actions related to: better understanding undeclared shipments; the complexity and adequacy of the current regulations; safety gaps related to hazardous materials shipments in the US mail; enhanced inspection authority; and, ways to improve DOT's current performance measure.

<u>Livable Communities (FTA) – Livable Communities – Evaluation of the Livable Communities Initiative (FTA)</u>

The FTA Livable Communities Initiative (LCI) was authorized in 49 U.S.C. Section 5309(a)(5) and (7) to improve the quality of life in urban and rural communities through the use of transit systems. Under this Initiative, FTA originally funded 16 demonstration projects to examine the link between community sensitive transit and more livable communities. The sixteen projects involved a variety of concepts designed to improve personal mobility, transportation system performance, access to a variety of community services and the quality of life by linking transit and its immediate community.

The goals of the Initiative were to:

1. Strengthen the link between transit planning and community planning, including land use policies and urban design supporting the use of transit and ultimately providing physical assets that better meet community needs;

2. Stimulate increased participation by community organizations and residents in the planning and design process;
3. Increase access to employment, education facilities, and other community destinations through high quality, and community oriented, transit services and facilities; and
4. Leverage resources available through Federal, state and local, and public and private programs.

Major findings of the evaluation included:

- Project sponsors recognized the importance of the link between transit planning and community planning. Fifty (50%) percent of the projects have or plan to change land use for the property around their project site. Forty-four (44%) percent of the LCI projects initiated changes in the existing zoning ordinances. Eighty-seven (87%) percent of the LCI project sites have initiated strategies to encourage non-motorized transportation options and to implement land use planning actions to provide alternatives to the automobile for travel outside the project area.
- Community participation increased in not only transportation projects but also other community concerns such as housing. The most widely used public involvement techniques to achieve active community participation were public meetings and hearings. For example, the Los Angeles Metropolitan Initiative (LANI), a national livable community model, organized an eight-neighborhood coalition that worked with the Los Angeles County Metropolitan Transportation Authority to make community-recommended transit enhancements.
- Job-training centers were instituted in several demonstration projects. These centers strengthen and support FTA's Welfare to Work and the Job Access/Reverse Commute programs.
- Ninety-three (93%) percent of the initial financial investment by FTA has been leveraged. Six of the pilot projects have identified or expressed an interest in transit-oriented development (TOD) and joint development opportunities as a means of encouraging economic development. For example, the Spanish Speaking Unity Council in Oakland has planned a 68-unit senior housing project and a daycare center.
- As a result of the pilot projects, the concepts embodied in the LCI initiative have been institutionalized and the lessons learned are being used as models for other projects, e.g., the successful Columbus, Ohio Transit Center project is being used as a model of how to bring the community together, form public-private partnerships, and leverage resources.

Acquisition of Equipment and Materials (FAA)

The Congress granted FAA acquisition reform and mandated that FAA develop an acquisition system that addresses the unique needs of the FAA and, at a minimum, provides for more timely and cost-effective acquisition of equipment and materials. In response to this mandate, FAA developed the Acquisition Management System (AMS), which lays out FAA's policy for all acquisitions. FAA performed an evaluation of acquisition reform after three years under the AMS to review primarily how the FAA is doing since acquisition reform and to focus on the results of acquisition reform as measured against ongoing acquisitions.

Specifically the evaluation concluded:

- FAA's procurement efforts were achieving faster awards, were achieving a high rate of full and open competition, and were meeting small business goals. FAA's program results were on track to achieve success in terms of ensuring that programs support the FAA mission, meet planned performance and customer needs, but were not on track to meet cost and schedule baselines approved for individual programs.
- FAA reduced the average time to award contracts (based on a random sample of all contracts over $100,000) by 55 percent. The average time from contracting officer's first action to contract award decreased from 156 days in 1995 down to 119 days in 1997, and down to 70 days in 1998.

- FAA's rate of full and open competition since acquisition for all contracts greater than $25,000 was high and remained relatively stable. Before acquisition reform, in 1995, FAA competitively awarded 66 percent of these contract dollars. After acquisition reform, in 1997, FAA competitively awarded 63 percent of these contract dollars and in 1998 FAA competitively awarded 70 percent of these contract dollars.
- While FAA met its overall small business goal, it was not meeting its other goals for disadvantaged businesses and women owned businesses.

Federally Funded Maritime Education and Training (MARAD)

- MARAD evaluated the impact of the licensed officer education programs at the U.S. Merchant Marine Academy (USMMA) and the six State maritime academies. A draft report is currently being prepared.

Safety and Capacity Benefits of Selected ITS Technologies (FHWA)

The Intelligent Transportation Systems Program applies communications, electronics, and information systems technologies to solving multi-modal, surface transportation systems problems. Goals of ITS include increasing safety, improving the effective capacity of the infrastructure to move people and goods, reducing travel time and travel time variability, improving customer satisfaction, reducing cost, and reducing fuel consumption and harmful emissions. The program looks to both vehicle and infrastructure technology applications to achieve benefits primarily in system safety and effective capacity. Consistent with the intents of TEA-21 and ISTEA, the ITS program continues to conduct rigorous evaluations of ITS impacts, outcomes, and processes, and also conducts benefit-cost analyses of projects. Literally dozens of evaluation reports are produced yearly. The ITS Joint Program Office has established an Electronic Document Library (EDL) as a web-accessible resource for search and retrieval of numerous ITS-related reports. Well over 40 evaluation reports pertaining to effects of ITS on safety and capacity were completed and deposited into this library during FY 1999. The URL for the Electronic Document Library (EDL) is http://www.its.fhwa.dot.gov/cyberdocs/welcome.htm. "Intelligent Transportation Systems Benefits: 1999 Update" (EDL Document #8323), summarizes results gathered from multiple evaluations. The following are some results of ITS impacts on safety and effective capacity:

- Adaptive traffic signal control systems can reduce number of stops by a minimum of 20%, reduce travel times between 8% and 20%, and reduce delays by 15% or better.
- Video enforcement of traffic signal compliance has shown the potential to reduce between 20 and 43% of crashes occurring at intersections.
- Ramp metering has reduced crashes from 15 to 50%.
- A manual toll lane can accommodate 400-450 vehicles per hour, while an electronic toll lane peaks at 1000 vehicle per hour.

Information Collection Program (S-80)

Section 3505 of the Paperwork Reduction Act of 1995, requires, in part, that Federal agencies reduce their information collection burdens imposed on the public. The application of information technology (IT) is one of the means the Department could use to reduce its paperwork burden. To assess the validity of the use of IT to reduce this burden, a process program evaluation was conducted on the Federal Aviation Administration's Airmen Certification and/or Rating Application (ACRA) system. The ACRA system is used to certify that airmen meet required training and flight time criteria. The evaluation compared the manual and automated processes by measuring the results achieved with respect to reducing paperwork burden, enhancing customer satisfaction, and improving efficiency and productivity. The evaluation of the ACRA program shows that the application of IT can be used to meet these objectives. The results of the evaluation also suggest that IT could have the same or similar results on other information collection activities within the Department.

The evaluation concluded:

- Information technology reduced the paperwork burden by 27.1 percent.
- Customer satisfaction with the "new" process over the "old" was 91 percent.
- Efficiency and productivity increased with an average savings of 30 days relative to the 120, or more, required previously, and a 52.6 percent average reduction in errors.
- Cost savings from reduced burden hours could total over $5 million over 6 years with additional savings possible with further enhancements to the process.